REMARKS/ARGUMENTS

Claims 3-5, 8-10, 13-15, 18-22, 25, and 31-33 are currently pending in this application.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 3-5, 8-10, 13-15 and 18-20 contain allowable subject matter.

Claim Rejections - 35 USC §103

Claims 21, 22, and 31-33 are rejected under 35 U.S.C. §103(a) as being unpatentable over <u>Digital Communications</u>, Chapter 1, Section 1.6, pages 30-33 to Sklar (hereinafter referred to as "Sklar").

Claim 25 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sklar in view of U.S. Patent Application Publication No. 2004/0047284 to Eidson.

Regarding claim 21, the Examiner asserts that "expressing $\underline{r} = \underline{m} \otimes \underline{h}$ in the frequency domain, resulting in an output signal $\underline{R} = \underline{M} \cdot \underline{H}$, where $\underline{m}$ is a midamble sequence, $\underline{h}$ is a channel impulse response, $\otimes$ is a circular convolution operator, $\underline{R}$ is the fast Fourier transform (FFT) of time domain signal $\underline{r}$, $\underline{M}$ is the FFT of midamble sequence $\underline{m}$, and $\underline{H}$ is the FFT of channel impulse response $\underline{h}$, and $\underline{R} = F(\underline{r})$, $\underline{M} = F(\underline{m})$ and $\underline{H} = F(\underline{h})$ where F( ) is defined as the operator of forward or inverse FFT;" (claim 1) is disclosed by Sklar. However, Sklar teaches that a convolution of x(t) with h(t) is performed, where x(t) is an arbitrary input, h(t) is an impulse response and the resulting integral is nonperiodic (Sklar, page 31, lines 1-7 and eq. 1.46). In contrast, Applicants disclose performing a <u>circular</u> convolution on the result of an FFT (see claim 21). First, a circular convolution is not the same as a convolution. "A convolution is a mathematical operation on two functions f and g,

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producing a third function that is typically viewed as a modified version of one of the original functions," (http://en.wikipedia.org/wiki/Convolution). "A circular convolution of two functions is defined in terms of the periodic extension of one or both functions. Periodic extension means a new function is formed by shifting the original function by multiples of some period, T, and adding all the copies together" (http://en.wikipedia.org/wiki/Circular_convolution). Additionally, performing a circular convolution on the result of an FFT is not disclosed by Sklar. For these reasons, the Applicants submit that claim 21 is allowable over Sklar.

Claim 25 is dependent upon claim 21, and therefore, the Applicants submit that claim 25 is allowable for the reasons cited above. However, Applicants assert that Eidson does not disclose that "the FFT is extended to a proper length L to process a plurality of different burst types by using a chirp transform algorithm (CTA) to compute $F(\underline{r})$ and $F(\underline{m})$," (claim 25). Eidson does not teach anything about a chirp transform algorithm and Eidson does not extend the FFT. Eidson discloses that "the pilot signal (PS) length may be extended by interpolation," (Eidson, paragraph 125, lines 6-7). The methods of the Applicants and Eidson are clearly different, and therefore, the Applicants submit that claim 25 is allowable over Eidson.

Claims 22, 31-33 are dependent upon claim 21 which the Applicants also believe are allowable over the cited references of record for the same reasons provided above.

Based on the arguments presented above, the withdrawal of the 103(a) rejections of claims 21, 22, 25, and 31-33 is respectfully requested.
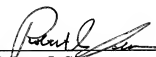
Conclusion

   If the Examiner believes that any additional minor formal matters need to be addressed in order to place this application in condition for allowance, or that a telephonic interview will help to materially advance the prosecution of this application, the Examiner is invited to contact the undersigned by telephone at the Examiner's convenience.

   In view of the foregoing remarks, the Applicants respectfully submit that the present application is in condition for allowance and a notice to that effect is respectfully requested.

                         Respectfully submitted,

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